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ABSTRACT

Differences in the play behavior of three mildly, three moderately/severely handicapped and three nonhandicapped preschoolers were examined. Videotapes of free play interaction were analyzed according to existence and appropriateness of interaction and type of noninteraction (toy-directed, self-directed or non-appropriate). Data were analyzed across the groups of nonhandicapped, mild, and moderate/severe handicaps. No significant differences in total number of interactions were found. There were, however, differences between the groups in terms of those with whom they interacted (adults, handicapped peers, and typical peers). The moderate/severe group demonstrated fewer initiations of interactions than other groups. Nearly 70% of all intervals for all three groups were recorded as non-interaction, with groups engaged mostly in toy-directed behavior. (CL)

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A Comparison of the Play Behavior of Preschool Handicapped and Nonhandicapped Children

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The Education for All Handicapped Children Act (P.L. 94-142), enacted in 1975, has mandated that handicapped children be educated with nonhandicapped children to the maximum extent possible. Since P.L. 94-142 was signed into law, there has been a proliferation of studies investigating the effects of integrating handicapped children into programs for nonhandicapped children. Studies of school-aged children have demonstrated that social acceptance of handicapped children by their nonhandicapped peers is not easily achieved (Bryan, 1974; Lano, Ayers, Heller, McGettingen, & Walker, 1974). However, several investigations of preschool age children indicate that successful integration may be more easily achieved if it is initiated during the preschool years (Dunlop, Stoneman, & Cantrell 1980; Guralnick, 1978; White, 1980).

Integration of handicapped and nonhandicapped children is rapidly becoming accepted practice at the preschool level and is based not only on P.L. 94-142, but also on the premise that nonhandicapped children serve as peer models of desirable behavior for handicapped children (Bandura, 1969; Peterson & Haralick, 1977). At the preschool level, several models of integration have been developed including integrating nonhandicapped children into a program for handicapped children (reverse mainstreaming), integrating handicapped children into typical programs part-time with continued placement in a special program part-time,

and completely serving the handicapped child through a typical preschool program with teacher consultation.

In Alabama, public school services for handicapped children are not provided until six years of age. The Auburn Intervention Model (Project AIM) at Auburn University is attempting to develop a service delivery model that will allow us to serve a maximum number of preschool handicapped children by utilizing existing typical preschool programs to the greatest extent possible. The research to be reported here is a pilot study--our initial attempt to analyze differences in the play behavior of handicapped and nonhandicapped children. The purpose of this research was to facilitate curriculum development in our program so that children who are likely candidates for successful integration experiences can be identified, trained on any needed social interaction skills, and hopefully, successfully placed in typical community preschool programs.

Method

Subjects

The subjects included in this study were attending the Auburn Intervention Model Preschool Program located at Auburn University. The study included three nonhandicapped, three mildly handicapped, and three moderate/severely handicapped children. Table 1

Insert Table 1 about here

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presents information on the subjects including chronological age at the time of observation and areas of delay experienced by the handicapped children. All of the subjects were attending the same preschool class for one-half day sessions, three days a week. Four other children, two nonhandicapped and two mildly handicapped also attended the class, but were not included in the study because of scheduling difficulties.

Setting

Subjects included in the study attended the Summer 1983 session at Project AIM. The AIM program is located on the campus of Auburn University in Auburn, Alabama. Fifteen minute observations were recorded for each child on video tape in AIM's main classroom by a trained graduate assistant. These observations of play were taped during "free time" on several different days. During this time, children were free to choose their play activity and materials. The activities which were available during the free time included: looking at books, working puzzles, playing in a kitchen center, coloring, playing with playdough, and playing with any other available toys. There were approximately 13 students and 4 adults present in the classroom each day.

Procedure

Observations of the children included in the study were recorded on video tape in order that coding of behaviors could be completed at a later time. Each child was taped for a total of

approximately 15 minutes. However, the total segment did not necessarily occur at one time. Some children were observed on two or three days for a few minutes each day due to scheduling problems.

An observational procedure was developed for the purpose of recording and coding behaviors from the tapes. Behavioral categories were identified and defined based on the work of Walter and Vincent (1982) and Field, Roseman, DeStefano, and Koewler (1982). A time sampling procedure was used which included 10 seconds of observation followed by 5 seconds of recording time. An auditory signal was used to alert the observer of observation segments. During each 10-second interval, the following behaviors were coded.

Behavior	Definition
1. Interaction (I)	Any verbal interaction which involved the child either speaking to someone or being spoken to; any non-verbal interaction which involved the child including any physical touch, any communicative gesture or playing with the same toy.
Non-interaction (NI)	If no interaction occurred during the 10 seconds, a noninteraction was recorded.

2. Interaction with adult (A), typical peer (TP), or handicapped peer (HP)	Designation of those with whom the child interacted. The choices included adult, typical peer, or handicapped peer. If the child interacted with A, TP and HP during an interval, all were recorded.
3. Initiated by child? Yes or No	Whether or not the child being observed initiated the interaction which occurred during the interval. Interaction which was on-going at the beginning of the interval was not counted here.
4. Interaction appropriate? A or NA	Interaction during the 10 second interval was coded as appropriate or non-appropriate. Non-appropriate was defined as any behavior which is disruptive to a classroom and may require teacher intervention.
5. Non-Interaction type: T (toy directed) S (Self directed) NA (non-appropriate)	If no interaction occurred (according to the previous definition of interaction) the type of behavior the target child displayed was coded by three descriptors: 1) Toy-directed behavior--child actively using a toy;

2) Self-directed behavior--any behavior which is not toy-directed nor is it disruptive; examples--looking at others, walking around

3) Non-appropriate behavior--target child's behavior is disruptive (i.e., temper tantrum, using a toy in manner which is disruptive to the class). More than one of these 3 types could be scored for a given interval.

To obtain a measure of reliability, two observers simultaneously coded the tapes for two of the nine subjects. Interobserver reliability was calculated for each of the five categories using the following formula:

$$\frac{\text{\# of agreements}}{\text{\# of agreements + \# of disagreements}}$$

Reliability was found to be as follows:

Behavioral Category	Child A Reliability	Child B Reliability
1	91%	82%
2	91%	82%
3	91%	76%
4	89%	82%
5	83%	68%

Once all the video tapes had been coded, totals and percentages were computed for each of the five observation categories. Initially, totals were obtained for each of the categories. These totals were then converted to percentages of total interval scores so that the following information became available:

The percentage of intervals during which interaction took place within the time segment.

The percentage of intervals during which interactions were initiated by the child.

The percentage of intervals during which interactions took place with an adult, with a typical peer, and with a handicapped peer.

The percentage of intervals during which interactions were non-appropriate.

The percentage of intervals during which non-interactions were non-appropriate, were toy-directed, and were self-directed.

Results

The obtained data was analyzed across the groups of nonhandicapped, mild, and moderate/severe using the Friedman Two-Way Analysis of Variance (Siegel, 1956). No significant differences were found at the .05 level.

Table 2 presents the mean percentages of intervals coded for each category within the three groups of subjects. A review of

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Insert Table 2 about here

Table 2 allows us to note the following. There was very little difference in the percent of intervals showing interactions for the three groups of subjects. The nonhandicapped, mild, and moderate/severe subjects spent close to the same percentage of intervals in interaction with others. However, there were differences between the groups in terms of those with whom they interacted. The nonhandicapped group had most interactions with typical peers ($\overline{X}$ = 67%), then handicapped peers ($\overline{X}$ = 25%), and least with adults ($\overline{X}$ = 17%). The mild group had most interactions with handicapped peers ($\overline{X}$ = 41%), then adults ($\overline{X}$ = 38%), and least with typical peers ($\overline{X}$ = 16%). The moderate/severe group had most interactions with adults ($\overline{X}$ = 44%), then typical peers ($\overline{X}$ = 30%), and least with handicapped peers ($\overline{X}$ = 25%).

The nonhandicapped and mild group were very similar in the percent of intervals showing that they initiated interactions ($\overline{X}$ = 49% and $\overline{X}$ = 48%). However, the moderate/severe group demonstrated fewer initiations of interactions ($\overline{X}$ = 24%).

All three groups had a relatively low percentage of nonappropriate interactions. The percentages were the same for nonhandicapped and mild groups ($\overline{X}$ = 4%) and higher for the moderate/severe group ($\overline{X}$ = 10%).

All three groups had close to 70% of all intervals recorded as non-interaction. Of these non-interaction intervals, the results show that all three groups engaged mostly in toy-directed behavior ($\overline{X}$ = 65%, $\overline{X}$ = 79%, $\overline{X}$ = 61%) with the mild group having the most toy-directed behavior ($\overline{X}$ = 79%). Self-directed behavior, which included anything not toy-directed or disruptive, was also very similar across categories ($\overline{X}$ = 57%, $\overline{X}$ = 46%, $\overline{X}$ = 52%). The percentage of nonappropriate noninteractions was highest for the moderate/severe group ($\overline{X}$ = 3%). This behavior was not recorded at all for the mild and nonhandicapped groups.

Discussion

The results of this pilot study can be compared to other research which has been done in this area. As in our study, the overall number of interactions does not appear to differentiate between groups of children in integrated settings (Dunlop,

Stoneman, & Cantrell, 1980; Walter and Vincent, 1982). In the present study, which employed a reverse mainstreamed setting, most interactions with adults were found for the moderate/severe group. In a mainstreamed kindergarten setting, Walter and Vincent (1982) found that the children who were judged by their teachers to be the most sucessfully integrated had the least interaction with adults. However, in segregated environments, Field, Roseman, DeStefano, and Koewler (1982) found that nonhandicapped children interacted with teachers equally as much as handicapped children. In the present study, there was little difference between the nonhandicapped and mild groups in terms of the initiations of interactions recorded. Water and Vincent (1982) report the same finding for their subjects in a mainstreamed kindergarten setting. These authors also report that successfully integrated preschoolers demonstrated more appropriate on-task behavior than preschoolers not successfully integrated which can be compared to our finding that the moderate/severe group demonstrated the highest level of nonappropriate (disruptive) behavior.

Field et al. (1982) have suggested a developmental progression from self-directed to teacher-directed to toy-directed to peer-directed play behavior. In their study, the severely handicapped children demonstrated the least peer-directed and toy-directed behavior and the most self-directed (self-stimulating) behavior. In the present study, the

nonhandicapped and moderate/severe group were very similar in terms of the percentage of self-directed and toy-directed behavior. However, "other-directed" behaviors were coded under the category of self-directed in this study; therefore, it is not possible to tell whether there actually exists a difference between these two groups which is not identified due to the coding system.

Research in the area of integrated preschool situations varies greatly. Many differences exist between studies in terms of the behaviors selected for observation, the settings chosen for observation, the degree of integration, (segregated, reverse mainstreamed or mainstreamed), teacher behaviors, attempts to facilitate interactions, and numbers of children present. It is difficult to arrive at definite conclusions from the existing literature on the characteristics which provide for successful integration of handicapped and nonhandicapped preschoolers. Rather, decisions to integrate, appear to be based on the mandate of least restrictive educational environment given by P.L. 94-142, the Education for All Handicapped Children Act, and on determinations of "best educational practice" (Vincent, Brown, & Getz-Sheftel, 1981) by professionals in the field. Clearly, there is a need for well designed studies which will provide a solid research basis for educational decisions in this area.

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Table 1

Children Included in Pilot Study

Subject number	Group	CA at observation	Areas of delay
1	Nonhandicapped	3.0 yrs	none
2	Nonhandicapped	4 yrs. 6 mos.	none
3	Nonhandicapped	2 yrs. 10 mos.	none
4	Mild	4 yrs. 1 mo.	physical
5	Mild	3 yrs. 9 mos.	speech and language
6	Mild	4 yrs 1 mo.	speech and language, cognitive, behavior
7	Moderate/Severe	4 yrs 1 mo.	cognitive, speech and language, physical, behavior
8	Moderate/Severe	4 yrs. 1 mo.	cognitive, speech and language, behavior, physical
9	Moderate/Severe	5 yrs 10 mos.	physical, cognitive, speech and language, behavior

Table 2

Mean Percentage of Intervals Coded by Group

Group	1	2			3	4	5		
	Interactions	With A	With TP	With HP	Initiated by child	Nonappropriate interaction	Non-interaction SD	TD	NA
Nonhandicapped	32%	17%	67%	25%	49%	4%	57%	65%	0%
Mild	27%	38%	16%	41%	48%	4%	46%	79%	0%
Moderate/Severe	30%	44%	30%	25%	24%	10%	52%	61%	3%